

REMARKS

Applicant appreciates the thorough review, and the Examiner's indication that claims 10, 16-18, and 20 contain allowable subject matter which would be allowed if rewritten in independent form including all of the limitations of the base claim and any intervening claim. The Examiner rejected claims 1-9, 11-15, and 19 under the provisions of 35 U.S.C. § 102(e) as being anticipated by both U.S. Patent No. 6,601,652, issued to Moore et al. (hereinafter "the Moore patent" or "Moore"), and U.S. Patent No. 6,935,432, issued to Kusmer (hereinafter "the Kusmer patent" or "Kusmer"). The Examiner also rejected claims 1-9, 11-15, and 19 under the provisions of 35 U.S.C. § 102(b) as being anticipated by both U.S. Patent No. 4,462,472, issued to Beimgraben (hereinafter "the Beimgraben patent" or "Beimgraben "), and U.S. Patent No. 3,970,335, issued to Curington et al. (hereinafter "the Curington patent" or "Curington"). Applicant respectfully requests reconsideration of the rejections because at least these references fail to disclose "a concentric string of conduit...defining an inner passage and an annular passage within the concentric string of conduit, the inner and annular passages being independently in fluid communication with the drill bit." Moreover, these references also fail to teach "an inner valve assembly carried in the inner passage that is selectively actuated between open and closed positions for regulating fluid flow through the inner passage." Furthermore, with respect to claims 11-15 and 23, these references also fail to teach "a concentric string of conduit...defining an axial inner passage extending axially through the concentric string of conduit and an annular passage," as well as "an inner valve assembly carried in the axial inner passage that is selectively actuated between open and closed positions for regulating fluid flow through the axial inner passage." Reconsideration of the Examiner's rejections is respectfully requested.

The Kusmer Patent Fails to Anticipate Claims 1-6 and 8-23

Kusmer discloses a borehole retention device 70 for anchoring a well tool within the walls 84 of a wellbore or well 22. *See* the Abstract of the Kusmer patent; *see also* the Kusmer patent (Col. 9: ll. 46-49, Figure 3). Device 70 is suspended from coiled tubing 20 through borehole 86 within walls 84 of well 22. *See id.* (Col. 4: ln. 40 – Col. 5: ln. 21, Col. 5: ll. 37-38, Col. 6: ll. 27-44, Figures 1 and 3). Device 70 has a central flow bore 66 that is in fluid communication with coiled tubing 20 for the passage of drilling fluids from the surface to bit 32. *See id.* (Col. 5: ll. 12-32, Col. 6: ll. 27-30, Figures 1-3). Drilling fluid flows from flow bore 66 ports 93,95 to ram 91 and ports 97,99 to ram 101. First and second fluid lines 205,207 communicate fluid between rams 91,101 and a hydraulic valving 211 regulates the flow of drilling fluid through first and second fluid lines 205, 207 to rams 91, 101.

The Kusmer patent does not disclose "a concentric string of conduit...defining an inner passage and an annular passage within the concentric string of conduit, the inner and annular passages being independently in fluid communication with the drill bit." The Examiner alleged that borehole 86 was an "annular passage" and that hydraulic valving 211 was an "annular valve assembly carried in the annular passage...for regulating fluid flow through the annular passage." Borehole 86 is just the area between the wall of the hole being drilled and the outer surface of device 70. Applicant respectfully submits that borehole 86 is not an annular passage according to claims 1, 11, and 19 at least because borehole 86 is not formed "within the concentric string of tubing." Moreover, hydraulic valving 211 does not regulate flow through borehole 86. As is evident in Figure 3, valving 211 cannot selectively open and close to regulate fluid flow through borehole 86. Fluid is going to freely flow axially along valving 211 whether valving 211 is open or closed because valving 211 does not engage bore walls 84. Each and every claim limitation

must be shown by Kusmer in order to reject the claims under the provisions of 35 U.S.C. § 102 as being anticipated by the Kusmer patent. *See* MPEP 706.02(j). Because Kusmer fails to disclose an "annular passage" of the concentric string of conduit and an "annular valve assembly" as defined in claims 1, 11, and 19, Applicant respectfully submits that Kusmer does not anticipate claims 1-6 and 8-23 and requests that the Examiner remove this rejection.

Furthermore, first and second fluid lines 205,207 are not "annular passages" pursuant to claims 1, 11, and 19 because flow bore 66 and fluid lines 205,207 are not "are independently in fluid communication with the drill bit." Flow bore 66 communicates fluid through ports 93,95 and fluid lines 205,207 to actuate rams 91,101. For this additional reason, Applicant respectfully submits that Kusmer does not disclose an "annular passage" as defined in claims 1, 11, and 19. Therefore, Applicant respectfully submits that the Kusmer patent does not anticipate claims 1-23 and requests that the Examiner remove this rejection.

With respect to new claims 21 and 22, in addition to Kusmer failing to show an annular passage and an inner passage that are independently in fluid communication with the drill bit, Kusmer also fails to show "the inner and annular passages [that] are independently in fluid communication with a surface end of the drill string located at the surface." Accordingly, in addition to being dependent respectively upon claims 1 and 11, Applicant respectfully submits that new claims 21 and 22 are also patentable because Kusmer fails to show outer ports 205,207 and inner flow bore 66 being independently in fluid communication with the surface end of the drill string located at the surface.

The Moore Patent Fails to Anticipate Claims 1-6 and 8-23

Moore discloses a pusher-thruster downhole tool 112 (i.e., another gripping tool similar to that disclosed in Kusmer) used in conjunction with a coiled tubing drilling system 100. *See*

the Abstract of Moore; *see also* Moore (Col. 11: ll. 46-54, Figure 1). Coiled tubing drilling system 100 typically includes a tubing injector 110 feeding a string of coiled tubing 114 into borehole 132, a connector 116 with a connection line 134 leading to downhole tool 112, a bottom hole assembly 120 having a drill bit 130 extending downhole from tool 112, so that pusher-thruster downhole tool 112 is positioned between coiled tubing 114 and drill bit 130. *See* Moore (Col. 11: ln. 46 – Col. 12: ln. 21, Figures 1 and 1B). Drilling fluid from coiled tubing 114 actuates pusher-thruster downhole tool 112 to move tool 112 and downhole assembly 120 within borehole 132 to maintain a preselected force on drill bit 130. *See id.* (Col. 11: ln. 46 – Col. 12: ln. 21, Figures 1 and 1B). Tool 112 includes a central flow channel 206 that receives the drilling fluid from coiled tubing 114. *See id.* (Col. 14: ll. 15-20, Figures 2A and 2B). Tool 112 includes forward and aft inner annuli 212F,212A, and forward and aft outer annuli 216F,216A. A valve control pack 220 regulates flow of drilling fluid from central flow channel 206 into inner annuli 212F,212A and outer annuli 216F,216A to cause tool 112 to move forward or aft. *See id.* (Col. 13: ln. 44 – Col. 16: ln. 22, Figures 2A-2E). Valve control pack 220 regulates drilling fluid flow through an opening 205, and into each of the various inner and outer annuli 212F,212A and 216F,216A. *See id.* (Col. 16: ll. 28-32, Col. 16: ln. 24 – Col. 18: ln. 33, Figures 2A-2E, and 3).

The Moore patent also does not disclose "a concentric string of conduit...defining an inner passage and an annular passage within the concentric string of conduit, the inner and annular passages being independently in fluid communication with the drill bit." The Examiner alleged that passages 216A,216F were inner and annular passages of the Moore device. Applicant believes that the Examiner meant to allege that outer annuli 216A and 216F were the alleged annular passage, and inner annuli 212A and 212F were the alleged inner passage. Applicant believes this because of the location of the annuli 212A&F and 216A&F relative to

each other, and the letter "A" represented "aft" and "F" represented "forward" of each respective annuli. Both annuli 212A&F and 216A&F receive drilling fluid from central flow channel 206 via opening 205. Neither annuli 212A&F nor 216A&F appear to extend from pull-thruster downhole tool 112 to drill bit 130, but rather terminate at the aft and front ends of tool 112. Thus, Moore does not teach that "the inner and annular passages [are] independently in fluid communication with the drill bit." Each and every claim limitation must be shown by Moore in order to reject the claims under the provisions of 35 U.S.C. § 102 as being anticipated by the Moore patent. *See* MPEP 706.02(j). Because Moore fails to disclose a "concentric string of conduit" with inner and annular passages as defined in claims 1, 11, and 19, Applicant respectfully submits that Moore does not anticipate claims 1-23 and requests that the Examiner remove this rejection.

With respect to claims 11 and 23, the Moore patent also fails to show "an axial inner passage extending axially through the concentric string of conduit..." and "an inner valve assembly carried in the axial inner passage that is selectively actuated between open and closed positions for regulating fluid flow through the axial inner passage." New claim 23 also limits the "inner passage" (from claims 7 and 1) as "an axial inner passage extending axially through the concentric string of conduit, and the inner valve regulates fluid flow through the axial inner passage." The Moore patent does not disclose any valve positioned within central flow channel 206, and inner annuli 212A&F do not extend axially through tool 112. Therefore, Applicant respectfully submits that claims 11-18, and 23 are also patentable over the Moore patent because Moore fails to teach "an inner valve assembly carried in the axial inner passage (as defined in claim 11)...for regulating fluid flow through the axial inner passage." Accordingly, Applicant

respectfully submits that Moore does not anticipate claims 11-18, and 23, and requests that the Examiner remove this rejection.

With respect to new claims 21 and 22, in addition to Moore failing to show an annular passage and an inner passage that are independently in fluid communication with the drill bit, Moore also fails to show "the inner and annular passages [that] are independently in fluid communication with a surface end of the drill string located at the surface." Accordingly, in addition to being dependent respectively upon claim 1 and 11, Applicant respectfully submits that new claims 21 and 22 are also patentable because Moore fails to show inner annuli 212A&F, outer annuli 216A&F, and central flow channel 206 being independently in fluid communication with the surface end of the drill string located at the surface. Therefore, Applicant respectfully submits that new claims 21 and 22 are also patentable over the Moore patent.

The Beimgraben Patent Fails to Anticipate Claims 1-6 and 8-23

Beimgraben discloses a downhole drilling motor M having an upper portion connected to a tubular string or drill pipe P, such as a string of drill pipe extending to a top of a bore hole H, and having a lower end secured to a drill bit A. *See* Beimgraben (Col. 3: ll. 4-9, Figure 1). Drill bit A connects to a lower end of a drive shaft 11 of motor M. *See id.* (Col. 8: ll. 20-21, Figures 1 and 2d-2f). Motor M assembly is housed within an outer housing structure 13, comprising a lower housing portion 26, a lower box 25, an intermediate housing 24, an outer stator housing 18 and an upper sub 14. An upper end of motor M connects to drill pipe P through upper sub 14. *See id.* (Col. 3: ll. 14-39, Figures 1 and 2a).

When lowering drill bit A into the well, fluid in bore hole H communicates through a central passage 122 in bit A, through a central passage 123 in drive shaft 11, and through ports 62 extending through the sidewalls of drive shaft 11 into an annular space inside of lower

housing portion 26 and lower box 25. *See id.* (Col. 8: ll. 20-29, Figures 1 and 2c-2f). From central passage 123 and ports 62 the drilling fluid flows upward into the annular space 125 between intermediate housing 24 joint assembly 29. *See id.* (Col. 8: ll. 27-33, Figures 1 and 2b-2d). The fluid flows up annular space 125 to an exterior surface of an extension 28 of a hollow rotor 21, which has side ports 30 in fluid communication with a central passage 31 within extension 28. *See id.* (Col. 8: ll. 27-34, Col. 3: ll. 48-53, Figures 1 and 2b-2c). The fluid flows up central passage 31 to an internal passage 32 within rotor 21. *See id.* (Col. 8: ll. 34-36, Col. 3: ll. 53-55, Figures 1 and 2a-2b).

The fluid then flows up internal passage 32, through openings 36 of a valve assembly 33, to an annular space between lower sub 14 and valve assembly 33, and into drill pipe P. *See id.* (Col. 8: ll. 34-37, Figures 1 and 2a). Valve assembly 33 is moveable such that openings 36 are closed, and internal passage 32 is capped, ceasing flow through internal passage 32 and central passage 31, so that drilling fluid from drill pipe P must pass between stator 19 and rotor 21 or motor M during drilling. *See id.* (Col. 8: ll. 37-47, Col. 3: ln. 48 – Col. 4: ln. 8, Figures 1 and 2a). Allowing fluid to flow through the pressure relief by-pass of internal passage 32 and central passage 31 is only done when lowering or lifting the assembly into bore hole H or when fluid pressure is too high to prevent damage to motor M. *See id.* (Col. 3: ln. 48 – Col. 4: ln. 8, Figures 1 and 2a).

The by-pass of internal passage 32 and central passage 31 is merely a low pressure route for fluid to pass between the common passages of annular space 125 and central passage 123 of motor shaft 11, and drill pipe P. Fluid from drill pipe P must travel through central passage 123 in order to reach drill bit A, whether the fluid flows through rotor 21 and stator 19 of motor M, or

through the low pressure by-pass of internal passage 32 and central passage 31 when valve 33 allows flow through openings 36.

The Beimgraben patent also does not disclose "a concentric string of conduit...defining an inner passage and an annular passage within the concentric string of conduit, the inner and annular passages being independently in fluid communication with the drill bit." The low pressure by-pass of internal passage 32 and central passage 31 when valve 33 is open, and the operational route for fluid through rotor 21 and stator 19 commonly communicate with drill bit A through annular space 125 and central passage 123. Both of these routes receive fluid (depending upon the direction of fluid flow) from either drill pipe P, or the combination of central passage 123 of drive shaft 11 and annular space 125. Thus, Beimgraben does not teach that "the inner and annular passages [are] independently in fluid communication with the drill bit." Each and every claim limitation must be shown by Beimgraben in order to reject the claims under the provisions of 35 U.S.C. § 102 as being anticipated by the Beimgraben patent. *See* MPEP 706.02(j). Because Beimgraben fails to disclose a "concentric string of conduit" with inner and annular passages as defined in claims 1, 11, and 19, Applicant respectfully submits that Beimgraben does not anticipate claims 1-6 and 8-23 and requests that the Examiner remove this rejection.

With respect to claims 1, 11, and 19, the Moore patent also fails to show "an inner valve assembly carried in the inner passage that is selectively actuated between open and closed positions for regulating fluid flow through the inner passage." The Examiner alleges that the Beimgraben valve assembly 33 constitutes "an annular valve assembly carried in the annular passage..." as defined in claims 1, 11, and 19. However, the Examiner also alleges that mandrel 35, openings 36, and sleeve 38 constitute an "inner valve assembly" as is also defined in claims

11, 7, and new claim 23. Mandrel 35, openings 36, and sleeve 38 are all components of the Beimgraben valve assembly 33 (Figure 1 and 2a). Applicant has specifically claimed an annular valve assembly and an inner valve assembly in claims 1, 11, and 19. Applicant respectfully submits this rejection is improper because the Beimgraben valve assembly 33, which only controls fluid flow into and out of internal chamber 32, cannot satisfy both the inner and annular valve assembly requirements. Therefore, Applicant respectfully submits that claims 1-6 and 8-23 are also patentable over the Beimgraben patent because Beimgraben fails to teach both "an annular valve assembly carried in the annular passage..." and "an inner valve assembly carried in the inner passage that is selectively actuated between open and closed positions for regulating fluid flow through the inner passage." Accordingly, Applicant respectfully submits that Beimgraben does not anticipate claims 1-6 and 8-23, and requests that the Examiner remove this rejection.

With respect to new claims 21 and 22, in addition to Beimgraben failing to show an annular passage and an inner passage that are independently in fluid communication with the drill bit, Beimgraben also fails to show "the inner and annular passages [that] are independently in fluid communication with a surface end of the drill string located at the surface." Fluid flow from both the Beimgraben by-pass route of internal passage 32 and central passage 31, and the route of rotor 21 and stator 19 commonly flow to drill pipe P. Accordingly, in addition to being dependent respectively upon claim 1 and 11, Applicant respectfully submits that new claims are also patentable because Beimgraben fails to show the rotor 21 and stator 19 route, and the by-pass route of internal passage 32 and central passage 31 being independently in fluid communication with the surface end of the drill string located at the surface. Therefore,

Applicant respectfully submits that new claims 21 and 22 are also patentable over the Beimgraben patent.

The Curington Patent Fails to Anticipate Claims 1-6 and 8-23

Curington discloses a dual concentric pipe P, with an axial internal passage, extending through a well bore W from a derrick D at the surface to a drill bit B for drilling a well while taking continuous core sample CS during drilling operations. *See* Curington (Col. 3: ll. 1-22, Figures 1a and 1b). The internal passage comprises a core tube 102, a central tube 94, an inner tube 80, an inner sleeve 75, and an adaptor tubing 68. *See id.* (Col. 4: ln. 64 – Col. 5: ln. 4, Col. 5: ll. 46-54, Col. 5: ll. 24-30, Col. 6: ll. 14-40, Col. 8: ll. 42-64, Figures 2a-2i). Core samples CS flow directly from bit B into the internal passage where they are carried upward through the internal passage for collection at the surface. *See id.* (Col. 11: ll. 36-53, Figure 11). No valve is located within the internal passage that regulates flow through core tube 102, central tube 94, inner tube 80, inner sleeve 75, and adapter tubing 68.

An outer annular passage extends along the exterior surface of adaptor tubing 68, inner sleeve 75, inner tube 80, and central tube 94, to a spring valve assembly 100. *See id.* (Figures 2a-2i). Outer annular passage extends through valve 100, into annulus 177. Annulus 177 extends all the way to the base portion of core tube 102 for supplying air through ports 107 into the inner portion of core tube 102 to carry core samples CS to the surface. *See id.* (Col. 11: ll. 46-54, Figure 1). Annulus 177 also communicates with exhaust passages 153, 155, 156. As is noted by Curington, the size restrictions of the route from annulus 177 to enter core tube 102 causes the majority of the air flow to operate the hammer and flush cuttings (i.e. to communicate with passages 153, 155, 156). *See id.* (Col. 9: ll. 41-46, Col. 11: ll. 36-57, Figure 1). There is not a valve between annulus 177 and the inside of core tube 102, rather there are merely ports 107.

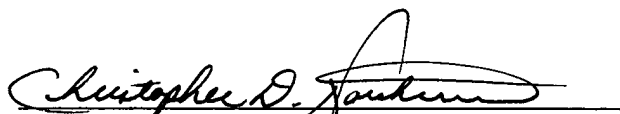
The Curington patent also does not disclose "an inner valve assembly carried in the inner passage that is selectively actuated between open and closed positions for regulating fluid flow through the inner passage." The Examiner alleged that passages core tube 102 and tubular member 190 were valve members, but Applicant respectfully submits that this is not the case. Nothing opens and closes the internal passage extending from bit B to derrick D and defined by the inner tubular members 102,94,80,75,68. Thus, Curington does not teach "an inner valve assembly carried in the inner passage that is selectively actuated between open and closed positions for regulating fluid flow through the inner passage." Each and every claim limitation must be shown by Curington in order to reject the claims under the provisions of 35 U.S.C. § 102 as being anticipated by the Curington patent. *See* MPEP 706.02(j). Because Curington fails to disclose an "inner valve assembly carried in the inner passage" as defined in claims 1, 11, and 19, Applicant respectfully submits that Curington does not anticipate claims 1-23 and requests that the Examiner remove this rejection.

CONCLUSION

Applicant respectfully submits that remaining Claims 1-6 and 8-23 are all in condition for allowance. Reconsideration of the application and allowance of all claims are respectfully requested, and Applicant respectfully requests the issuance of a Notice of Allowance.

Respectfully submitted,

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